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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/787,301	03/16/2001	Ola Olsvik	2001-0263A	8103

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WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

STRICKLAND, JONAS N

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 02/12/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/787,301	OLSVIK	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jonas N Strickland	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 March 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                               | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3 and 4</u> . | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

1. Claims 1-6 and 7-20 are objected to because of the following informalities:  
Applicant recites, "characterized in that", which is improper claim language. It is suggested that Applicant use language, such as -- comprising -- or -- comprises --.  
Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:  

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. Claims 7-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
4. Claims 7-10 provide for the use of a carbon dioxide rich gas stream and a hydrogen rich gas stream, but, since the claims do not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.
5. Claims 7-10 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 2, 4, 5, 12, 14, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Van Looij et al. (WO 94/26656).

Van Looij et al. discloses a process for the production of hydrogen and carbon monoxide mixtures or hydrogen from methane. Van Looij et al. continues to disclose wherein carbon dioxide and hydrogen are produced from steam and methane (p. 9, lines 18-27). Van Looij et al. continues to disclose wherein the reactor has a temperature of 500°C, with respect to claim 2 (p. 8, lines 15-20). With respect to claims 4, 5, and 12 Van Looij et al. discloses wherein the pressure is at 20 bar, as well as 30 bar (p. 2, line 8 and p. 7, line 10). Van Looij et al. continues to disclose wherein the gas mixture is passed over a catalyst bed, with respect to claims 14 and 16 (p. 2, lines 3-5).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 3, 11, 13, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Looij et al. (WO 94/26656) as applied to claims 1, 2, 4, 5, 12, 14, and 16 above, and further in view of Pagani (CA 868821).

Applicant claims with respect to claims 3, 11, 13, and 15, wherein the reforming reactor has a pressure from about 200 to about 500 bar. The teachings of Van Looij et al. have been discussed with respect to claims 1, 2, 4, 5, 12, 14, and 16. Furthermore, Van Looij et al. discloses a process for the production of carbon dioxide and hydrogen wherein the interval has a reactor pressure of 20 bar. However, Van Looij et al. fails to disclose wherein the reforming reactor has a pressure from about 200 to about 500 bar.

Pagani teaches wherein methane and steam are used to produce carbon dioxide and hydrogen (p. 2, lines 1-9), and wherein the reformer has a pressure of from 50 to 250 bar (p. 3, lines 9-14).

Therefore, it would have been obvious to one of ordinary skill in the art, to modify the teachings of Van Looij et al., based on the teachings of Pagani, by using a reforming reactor having a pressure of from about 200 to about 500 bar to produce a gas stream comprised of carbon dioxide and hydrogen, because Pagani teaches wherein a

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reforming reactor having a pressure from 50 to 250 bar is used to produce carbon dioxide and hydrogen gas mixture. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill in the art, would have been motivated to combine the teachings of Pagani with the teachings of Van Looji et al., because both references are directed towards methods for producing gas streams comprised of carbon dioxide and hydrogen.

11. Claims 6 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Looij et al. (WO 94/26656) in view of Pagani (CA 868821) as applied to claims 1-5 and 11-16 above, and further in view of Kapoor et al. (US Patent 5,714,132).

Applicant claims with respect to claim 6, wherein the reforming reaction is carried without a catalyst. Van Looij et al. (WO 94/26656) in view of Pagani teach using a catalyst in the reformer for producing a carbon dioxide and hydrogen gas mixture, but do not teach using a reformer without a catalyst.

However, Kapoor et al. teaches a process wherein a hydrocarbon is contacted with water vapor to produce a gaseous effluent comprised of hydrogen and carbon dioxide. Kapoor et al. continues to disclose wherein the reforming reaction is carried out with a catalyst, but may be carried out thermally (col. 2, lines 15-28 and col. 2, lines 40-45).

Therefore, it would have been obvious to one of ordinary skill in the art, to modify the teachings of Van Looij et al. in view of Pagani, based on the teachings of Kapoor et al., by carrying out the reforming reaction without a catalyst in a process for producing hydrogen and carbon dioxide, because Kapoor et al. discloses a process for producing

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hydrogen and carbon dioxide, wherein the reforming reaction is not driven with a catalyst, but through thermal treatment. Such modification would have been obvious to one of ordinary skill in the art, because one of ordinary skill, would expect a process for producing hydrogen and carbon dioxide with a reformer reactor as taught by Kapoor et al., to be similarly useful and applicable to a process for producing hydrogen and carbon dioxide with a reforming reactor as taught by Van Looij et al. in view of Pagani.

**Conclusion**

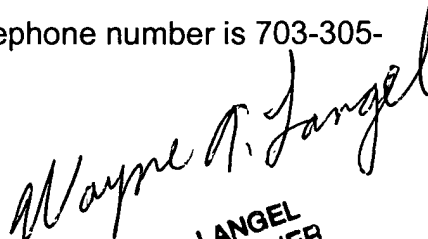
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonas N Strickland whose telephone number is 703-306-5692. The examiner can normally be reached on M-TH. 7:30-5:00, off 1st Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-0661.



Jonas N. Strickland  
February 1, 2003



WAYNE A. LANGEL  
PRIMARY EXAMINER